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The Okiek men of Kenya hunt for food like their ancestors. Fiona B. Marshall, Ph.D., assistant professor of anthropology, lived with the Okiek to gather information on how food sharing affects body part distribution in archaeological sites.

Sharing the bounty

Modern hunter-gatherers provide clues to ancient habits

As Americans prepare to celebrate Thanksgiving, an anthropologist at Washington University has found a way to test the theory that food sharing has been going on for some 1.8 million years.

Archaeologists have long thought that food sharing among early humans was a fascinating but untestable theory — until now. New research by Fiona B. Marshall, Ph.D., an assistant professor of anthropology at Washington, suggests that food sharing by early humans can be recognized by the kinds of animal parts left at archaeological sites.

The presence or absence of food sharing is important because it can influence how archaeologists interpret future excavations. In addition, some argue that food sharing may have been one of the activities that led to the development of large brains and cultural characteristics unique to modern humans.

Marshall's research, in which she observed the Okiek, a hunter-gatherer tribe in Kenya, will appear in a book, *From Bones to Behavior*, to be published by the Center for Archaeological Investigation at Southern Illinois University at Carbondale (SIUC). The book, which is due out next month, comprises papers delivered in April, 1991, at the eighth annual visiting scholars conference at SIUC. A second article by Marshall will be published in a 1993 issue of the Journal of Archaeological Science.

In the 1970s, the late Glynn Isaac, who was a professor of anthropology at Harvard University, suggested food sharing as an important measure of when hominids stepped over the threshold to humanity. He based his theory on the distribution of clumps of animal bones at Olduvai Gorge in northern Tanzania, where evidence for some of the earliest hominids was found. These hominids lived 1.8 million years ago. However, according to Robert Blumenschine, Ph.D., associate professor of anthropology at Rutgers University, Isaac began backing away from the theory because there was no way to gather evidence for the practice.

Marshall is the first to look at how food sharing affects body part distribution.

Archaeologists often study contemporary hunter-gatherer societies to learn how other hunter-gatherers may have operated in the ancient past.

"Many anthropologists have studied contemporary hunter-gatherer cultures and have documented the importance of food sharing for reducing risk of starvation and for maintaining social ties, but no one until now has asked how food sharing would appear in the archaeological record or been able to show how long ago that behavior began," says Marshall. "This work is the first to document sharing between sites and the first to focus on the influence of food sharing on the accumulation of body parts.

"Contemporary hunter-gatherers are, of course, fully modern humans, and most have been interacting with farmers and pastoralists for thousands of years. They possess unique knowledge about wild plants and animals and how to live off them using only a simple technology. For this reason they offer archaeologists a special opportunity for thinking about aspects of the past. Study of hunting and meat eating among modern hunter-gatherers, for example, can help us understand the relationship between a pile of broken bones, or 'garbage', left at an ancient archaeological site, and activities such as eating, cooking or food sharing that produced that pile of bones."

Animal bones often provide the primary source of information about subsistence and diet. Aside from stone tools, bones also are usually one of the only remaining signs of previous habitation, particularly in early sites.

The previous model archaeologists used to explain animal part distribution was based on principles of transport. According to this model, animal parts were transported by humans from kill sites to home-base sites. Humans would carry back animal parts as long as the meat on the bone provided more energy than the energy it took to carry the meat to the home-base site. In this "transport model," the

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Volleyball team to host NCAA final four

For an unprecedented fourth year in a row, Washington University has been selected to host the NCAA Division III women's volleyball final four. The two-day event begins Friday, Nov. 20, in the Washington University Field House.

The Bears (38-0) will face Calvin (Mich.) College (36-7) at 8 p.m. on Nov. 20 in one national semifinal match. Prior to that match, the University of Stony Brook (N.Y.) (36-3) will meet the University of California, San Diego, (12-18) at 6 p.m. The two winners will play in the championship match at 8 p.m. on Saturday, Nov. 21, while the two losers will meet in the third-place match at 5 p.m.

Washington, which won national titles in 1991 and 1989, enters the semifinals riding

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The Record will not be published during the week of Thanksgiving. The next issue will be dated Dec. 3. The Record staff wishes everyone a happy, healthy and relaxing Thanksgiving holiday.

University faculty votes to approve clinician track

The votes have been cast and if approved by the University's Board of Trustees Dec. 4, the School of Medicine will be able to offer a clinician track for doctors who spend more time on teaching and patient care than on research.

In a vote open to the entire University faculty on Nov. 6, amendments to the tenure plan to make a clinician track possible were approved by a 4-to-1 margin, according to John N. Drobak, J.D., professor of law, who serves as chair of the Senate Consul, an elected body that represents faculty interests in University policy decisions.

"This is a major change in tenure policy resulting from a year-and-a-half of dialogue between the medical school administration and faculty," Drobak says. "There was full and open discussion, and the end result is that a new career pathway for physicians is being established that will better serve the needs of the School of Medicine."

Of the 565 votes cast, 446 were in favor of the clinician track. Nearly all the votes were cast by School of Medicine faculty. The results will now be presented to the University's Board of Trustees as an amendment to the Washington University Policy on Academic Freedom, Responsibility and Tenure.

In awarding tenure, the University has always stressed the importance of research, explains James P. Crane, M.D., associate vice chancellor and associate dean for clinical affairs at the School of Medicine. While research is critical to the institution, he points out that the complexity of medicine often demands a significant portion of

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Undergraduate task force established

In response to the Committee to Prepare for the 21st Century's recommendation to address the quality of undergraduate education both in and outside the classroom, Provost Edward S. Macias has appointed a Task Force on Undergraduate Education.

Burton Wheeler, Ph.D., professor of English and former dean of the College of Arts and Sciences, will chair the 29-member task force, which will include eight students, in addition to faculty and staff. "The task force will consult widely with others both inside and outside the University," said Macias. "The group's deliberations will be open and inclusive in order to help build a broad consensus for new ideas." The task force will be active until the spring of 1994.

Macias said the task force will "be guided by three basic questions: What do we want a Washington University education to be? What are we doing now? and How well are we doing?" The group will pay particular attention to the first-year experience, he added.

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In This Issue...

Medical Update

Despite the headlines, few have chronic fatigue syndrome

Chronic fatigue syndrome may be in the news more than it is in the general population, according to a study by researchers at the School of Medicine.

Hyped as the epidemic of the '90s, chronic fatigue syndrome results in debilitating fatigue and neuromuscular and neuropsychological symptoms. It is said to occur more frequently in women than men and has been linked to viral infections, immune deficiency, psychiatric disorders and even to allergies. However, its definitive cause is still unknown, and there is no cure.

In what is believed to be the first look at the prevalence of chronic fatigue syndrome across several regions of the United States, the Washington University researchers found many people complaining about fatigue but very few cases of the actual disease — 7.4 in 100,000. Their evaluation was based on criteria established by the Centers for Disease Control (CDC) in Atlanta, which defines major and minor symptoms of the syndrome.

"We followed the CDC criteria for chronic fatigue syndrome and applied it to the general population," says Rumi K. Price, Ph.D., research instructor of epidemiology in psychiatry and the primary investigator of the epidemiological study on fatigue. She is senior author of an article that outlines the study's results. The article appears in the Sept.-Oct. 1992 issue of *Public Health Reports*, a publication of the U.S. Department of Health and Human Services.

In the study, researchers analyzed existing data from mental health interviews with more than 13,500 people who were surveyed for the Epidemiologic Catchment Area Program (ECA).

The ECA study was a general population health survey of persons ages 18 and older conducted between 1981 and 1984. Although it was not designed to gauge the prevalence of chronic fatigue syndrome, a majority of the CDC's criteria for the disorder were discussed.

"The designers of the ECA study inquired only about some symptoms, and we took those and applied them to the CDC criteria," says co-author Carol S. North, M.D., assistant professor of psychiatry at the School of Medicine. "In doing that, we were able to approximate chronic fatigue syndrome in the general population."

Unmet criteria

Because so little is known about the syndrome, the CDC in 1988 established criteria to define the disease. It lists major symptoms as persistent and debilitating fatigue of six months or more that results in a significant reduction in routine activities. The CDC defines minor symptoms as mild fever, sore throat, painful lymph nodes, general muscle weakness and discomfort, prolonged fatigue, headache, joint pain, and neuropsychological complaints such as transient visual problems, forgetfulness, slow thinking, depressed mood and sleep disturbances.

"The literature and mass media attention would indicate chronic fatigue syndrome is reaching epidemic proportions. It's surprising that in spite of the apparent epidemic of this condition, according to media sources, these preliminary data aren't showing evidence of that in the community," says North.

Contrary to the headlines, Price and North found only one person in their analysis of more than 13,500 people who met the diagnosis for chronic fatigue syndrome. Less than one-quarter of the study population had experienced fatigue lasting two weeks or more, and in about half of that group, the fatigue was explained by physical illness or medication. The CDC criteria excluded chronic fatigue syndrome as the diagnosis if an accompanying medical or psychiatric condition could explain the fatigue.

As a result, many of those who initially appeared to meet the major criteria for the syndrome actually did not. Of the population with fatigue who had accompanying problems, 90 percent had a medical or psychiatric condition, which excluded them from qualifying for a CFS diagnosis.

"We found the vast majority of cases that would have met most of the CDC criteria had accompanying physical or psychiatric illness," says North. "So, while there were a lot of complaints about chronic fatigue, once the CDC criteria had been utilized to evaluate the cases, most of them were excluded because of a physical or psychiatric condition."

More than twice as many women as men met the CDC's major criteria for the syndrome, citing persistent, debilitating fatigue and a significant reduction in routine activities. Women also were more than six times as likely as men to meet the CDC's minor criteria for the disease.

"With these criteria, many people reported major symptoms and many reported minor symptoms, but only one person had both," observes North. If the CDC exclusion criteria for medical or physical illness had not been applied, she says 159 women and 61 men, or 1.4 percent of the entire study population, would have fulfilled the approximated criteria for chronic fatigue syndrome.

Those who met some but not all of the major and minor CDC criteria were described as suffering "fatigue symptom complex." This was defined as a cluster of chronic fatigue syndrome symptoms, and also was rare.

Price says there may be some inconsistencies in the CDC criteria, and some CFS researchers are proposing to revise the criteria. Meanwhile, she and North are examining the CDC exclusion criteria, which eliminated the majority of cases that otherwise appeared to be chronic fatigue syndrome, and are trying to pinpoint where those cases went. "Apparently, the majority of them have some association or potential explanation, and we're looking into what those are," says Price. "If the CDC exclusion criteria eliminate most of the cases, we would like to know into which exclusion criterion do they fall."

Rare, but serious

Although the researchers stress that their results are preliminary, the findings are consistent with studies elsewhere. In Australia, the only general population study of chronic fatigue syndrome there estimated prevalence at 31 cases per 100,000, higher than the Washington University report, but still considered very low.

"Though we found it rare, this is a very serious disorder and we're not taking it lightly," says North. "People who have this syndrome are often disabled in both their personal and professional lives, and even those who don't have other serious conditions to explain the disease are very sick."

Price says chronic fatigue syndrome has received a great deal of attention because its symptoms are devastating and debilitating. "We don't want to say there is no chronic fatigue syndrome, but we didn't find the kind as defined by the Centers for Disease Control," she says.

— Kleila Carlson

Leland Melson, Washington University radiologist, dies at 53

Leland G. Melson, M.D., professor of radiology at the School of Medicine, died of cancer on Nov. 10 at his home in Glendale, Mo.

Melson, who was 53, was a member of the medical school faculty for 20 years. He was highly respected for his work as a teacher and clinician, and for his research on abdominal ultrasound imaging.

Melson received his medical degree from Washington University in 1965 and joined the faculty in 1972 as an instructor at the medical school's Mallinckrodt Institute of Radiology. He became chief of the clinical ultrasound division in 1977, and a professor in 1983.

Leland G. Melson

He received several honors during his career, including being named a member of the medical honorary society Alpha Omega Alpha and a fellow of the American College of Radiology. In 1989, he was recognized by the St. Louis Metro Area Sonographers for his contributions to the field of ultrasound.

He published more than 50 scientific journal and textbook articles and was an active member of several professional societies. He served on the Missouri Radiological Society board of directors; as vice president of the Alpha Omega Alpha local chapter at Washington University; and as a past president of the Greater St. Louis Society of Radiologists. He also served on a consensus-development panel for the National Institutes of Health.

Melson was born in Lincoln, Neb. In 1958, he earned a bachelor's degree in chemistry from Ottawa University in Ottawa, Kan. After receiving his medical degree, he completed an internship and residency at Peter Bent Brigham Hospital in Boston, then completed a second residency in diagnostic radiology at Washington University.

A memorial service was held Nov. 13 at Salem United Methodist Church in Ladue. Among Melson's survivors are his wife, Brenda Melson; his daughter and two sons; his mother and a sister.

University receives $2 million bequest

Washington University has received a $2 million bequest from the estate of the late Audrey L. Levin, Chancellor William H. Danforth has announced.

The bequest will establish an endowment in the Department of Medicine at the School of Medicine to fund one, possibly two, chairs to further arthritis research.

Levin and her husband, the late Sam J. Levin, were internationally recognized philanthropists and art collectors. They had contributed many works to art museums in Israel and the United States. Locally, they contributed paintings and sculptures to St. Louis University, Washington University and the Saint Louis Art Museum.

Levin was founder of Audrey Levin Realtors, a highly successful real estate firm specializing in commercial property. She was a member of Washington University's William Greenleaf Eliot Society.

Chancellor Danforth said she was one of her generation's great benefactors. "She showed us how to enjoy life's gifts while sharing them with others. I am thankful that she chose Washington University as a partner in doing good for the generations ahead."

Calvert, professor of audiology, dies

Donald R. Calvert, director of the Central Institute for the Deaf for 16 years, professor of audiology and chair of the Washington University Department of Speech and Hearing, died Nov. 8, 1992, of cancer at his home in Sacramento, Calif. He was 63.

A native of Omaha, Neb., Calvert received a bachelor's degree from the University of California at Berkeley, a master's degree in speech and hearing from Washington University and a doctorate in speech pathology and audiology from the Stanford University School of Medicine.

Donald R. Calvert

He was a founding Fellow of the Academy of Science of St. Louis and a Fellow of the American Speech/Language/Hearing Association. He began his career as a research assistant and clinical teacher at the Central Institute for the Deaf in 1954. He was the author of dozens of professional and scientific articles. His books include *Descriptive Phonetics*, a text widely used in colleges throughout the country and considered a classic in the field, and *Speech and Deafness*, co-authored with S. Richard Silverman.

He is survived by his wife, Rae Minton Calvert, a native of St. Louis, and by his son, Clay Calvert, studying in a doctoral program at Stanford University. Memorials may be made to the Donald R. Calvert Scholarship Fund of Central Institute for the Deaf, 818 S. Euclid Ave., St. Louis, Mo., 63110.

Record

Executive Director, University Communications: Judith Jasper
Executive Editor: Susan Killenberg
Editor: Deborah Parker, 935-5235, Box 1070
Editor, Medical news: Kleila Carlson, 362-8261, Medical School Box 8065
Assistant Editor: Carolyn Sanford, 935-5293, Box 1070
Contributing writers: Debby Aronson, Jim Dryden, Gerry Everding, Tony Fitzpatrick, Nancy Galofre, Jim Keeley, Juli Leistner, Nancy Mays, Dave Moessner, Joni Westerhouse, and Mike Wolf
Photographers: Joe Angeles, Tom Heine, David Kilper and Herb Weitman
Production: Galen Harrison
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Washington People

Research-clinic interaction sweet to Kornfeld

Twenty-six years ago, Stuart A. Kornfeld began his research career exploring an unconventional idea to explain a fundamental process. He was interested in how cells control the complex traffic patterns that occur as new materials such as proteins are formed. Cells constantly churn out thousands of new proteins, each with a specific form and function. As the proteins are being assembled, they are shuttled from place to place within the cell, and when complete, are delivered to their ultimate destination. At each step in this complex process, the proteins must be recognized and sent on to the right location.

Kornfeld proposed that sugars carried on the proteins' surfaces might act as signals to help direct this molecular traffic. Since then, his groundbreaking discoveries have shown the idea to be correct. His research has explained the role these sugars play in routing a class of proteins called lysosomal enzymes to their destination within the cell — findings that have important implications for a whole family of human diseases.

Kornfeld, who was born in St. Louis, developed his interest in medical research in childhood. After completing undergraduate work at Dartmouth College in 1958, he came to Washington University to attend medical school. He spent his summers in the lab of Luis Glaser, Ph.D., professor of biological chemistry, studying how bacteria form long chains of sugar molecules called polysaccharides. That process would become his specialty. The experience convinced him that he wanted to do basic research but also feed his interest in medicine by working in a clinical department.

After receiving his medical degree, Kornfeld spent two years at the National Institutes of Health honing his research skills. He returned to Washington University in 1966, drawn by the philosophy of Carl Moore, M.D., then head of the Department of Internal Medicine. "Carl Moore was a real believer that basic science research plays an important role in medicine. Therefore he was very supportive of having people in his department do basic science work, even though it was a clinical department. He understood that in order for that to occur, you had to give your faculty sufficient time and support. I never even looked anywhere else for a job because this just seemed ideal. And it was."

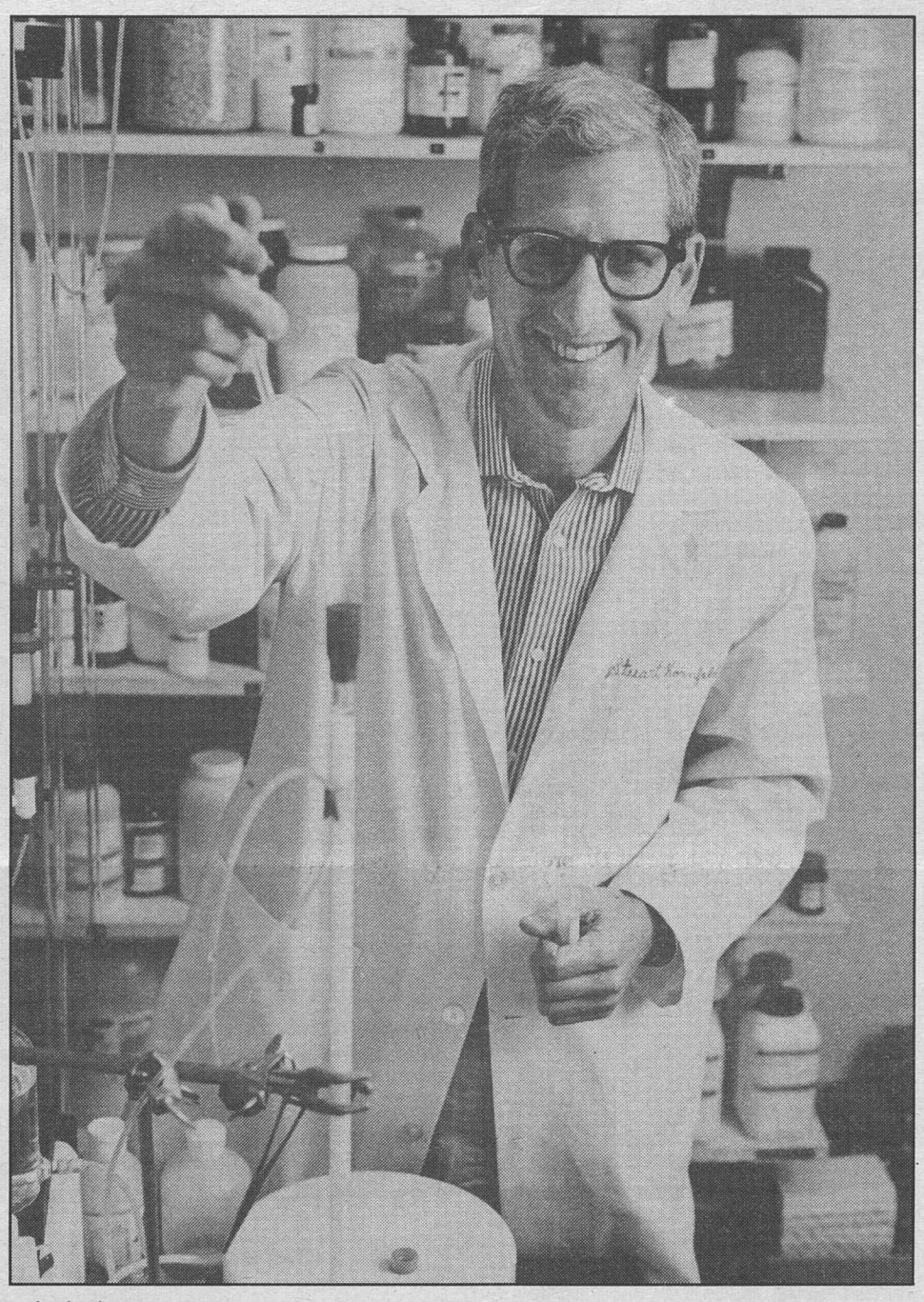
He joined the hematology faculty along with his wife, Rosalind Kornfeld, Ph.D., whom he had met in Glaser's lab. He again began studying sugar chain formation, this time in animal cells, and this time with the unusual proposition that sugars might play an important and widespread role in helping cells and molecules within cells to communicate.

At the time, it was known that many protein molecules carried complex chains of sugars, or oligosaccharides, on their surfaces. Although the sugars' function was not known, many scientists assumed their role was purely to protect the protein. Kornfeld was among the first to propose that sugars might serve as markers to distinguish one protein from the thousands of others within the cell. Key molecules such as enzymes or carriers might read chemical signals in the sugar chains to identify the proteins with which they needed to interact, he thought.

Working with Rosalind Kornfeld, professor of medicine and of biochemistry and molecular biophysics, he spent the next few years developing techniques to find the structures of oligosaccharides — a key to understanding their function. The Kornfelds were among the first to map out structures for specific, complete sugar chains. In the late 1970s, Kornfeld collaborated with Sondra Schlesinger, Ph.D., professor of molecular microbiology, to uncover the complex system cells use to construct oligosaccharides linked to the amino acid asparagine in proteins. He predicted and then proved that to form all of the thousands of asparagine-linked sugar chains that exist, cells start with one precursor molecule and remodel it. He identified many of the enzymes responsible for that remodeling. The Kornfelds also studied a number of proteins present in seeds of plants that have the ability to recognize and interact with specific sugar chains. This work served as a useful model for how molecules of animal cells might carry out a similar function.

His work led to an explosion of interest in the topic. "Because of the evidence now that these sugar chains do have roles as specific recognition molecules and are very important in biologic processes such as inflammation, many different labs now are trying to characterize the enzymes that mediate the synthesis of specific sugar chains and the molecules that recognize these oligosaccharides," Kornfeld said.

In the early 1980s, Kornfeld found an opportunity to apply his basic science expertise to tackle a clinical problem — a family of diseases called lysosomal storage disorders. The disorders result when cell components called lysosomes cannot adequately perform their critical role of breaking down and eliminating cell waste. Although their severity varies, the disorders can lead to death in childhood.



"I never even looked anywhere else for a job because this just seemed ideal. And it was."

He had heard that two NIH researchers, Elizabeth Neufeld and Kornfeld's former student Scot Hickman, had found the cause of a lysosomal storage disorder called I Cell disease. In a normal cell, lysosomal enzymes are formed and then delivered to the lysosomes, where they chew up waste. In patients with I Cell disease, Neufeld and Hickman found, lysosomal enzymes lack the marker that tells a specific carrier protein to take them to lysosomes. The marker was then identified as the phosphorylated sugar mannose 6-phosphate by William Sly, M.D., who was on the Washington University medical school faculty at the time. However, because no one had been able to show how the marker was formed, researchers were unable to pinpoint its defect in I Cell disease.

"I was very interested in this because it was an example of a sugar-protein interaction that's biologically important. If it doesn't work right, you have a fatal disease," Kornfeld said. He proceeded to identify two enzymes that add the marker to lysosomal enzymes and found that I Cell disease patients lacked the first enzyme. He went on to discover another chemical signal that allows the two marking enzymes to distinguish their targets — enzymes destined for lysosomes — from the many other enzymes in the cell. Because of these findings, he is credited with explaining how lysosomal enzymes reach their destination. The research forms a basis for understanding how other signal markers in cells work and for developing treatments for diseases caused by defective signals. The work earned him the medical profession's highly coveted Passano Award in 1991, which he shared with Sly, professor and chairman of biochemistry at St. Louis University School of Medicine.

The research is a long way from curing I Cell disease, says Kornfeld. But, he adds, it has led to reliable diagnostic techniques, and also to therapies. Researchers have developed a replacement therapy for a lysosomal storage disorder called Gaucher's disease and are seeing improvement in patients, he says. "So all of this information ... is leading to some practical benefits," he says.

Kornfeld, professor of medicine and of biochemistry and molecular biophysics, has won awards for his research and is a member of several honorary societies, including the National Academy of Sciences, the Institute of Medicine, the American Academy of Arts and Sciences and the Association of American Physicians. He now plays an active role in shaping careers of future physician/scientists. In addition to being a leading investigator, he is a respected clinician, administrator and teacher.

He directs the Medical Scientist Training Program (MSTP), whose graduates earn both an M.D. and Ph.D. The program is close to his heart because it is designed to train physicians to conduct academic research. "I've always felt there is an important role for physician scientists and that physicians who are well trained in basic science and are members of clinical departments can contribute in a major way," he says. He is proud of the large number of MSTP graduates who have gone on to become prominent faculty members in medical schools throughout the country, he says.

He is considered a valued adviser and an excellent role model for his students. One of Kornfeld's most valuable lessons, says former student Jim Duncan, M.D., Ph.D., is to resist preconceived notions that might mask valuable observations — an idea he taught by example. "Lab work is straightforward when experiments give the predicted results. With unexpected results, Stuart would reassess the experiment from beginning to end, ask what the data meant and pull out details that led to important discoveries," said Duncan, who completed his M.D. and Ph.D. in 1988 and is now a research instructor in radiology. Although lab work is still his first love, Kornfeld says he values his interactions with students. "I enjoy talking about the work, analyzing the data, planning the experiments and interacting with very bright, young, energetic people. That's very satisfying."

Kornfeld also is credited with helping to build the Division of Hematology/Oncology into one of the largest in the School of Medicine, says Phil Majerus, M.D., professor of medicine and of biochemistry and molecular biophysics. Majerus and Kornfeld have shared the post of director of the hematology/oncology division since the mid-1970s. When Majerus and the Kornfelds joined the hematology division together in 1966, they raised its ranks from two to five; today the division comprises a total of some 100 faculty, students and trainees. The division draws strength from its diversity, Kornfeld says. "We have this mixture, this broad base of people all being trained here. And while our clinical activities don't take place on this floor, medicine permeates the atmosphere."

Kornfeld maintains a hand in both clinical and research duties and is an attending physician at Barnes Hospital. He says this balance gives him personal satisfaction; others say it also gives him a perspective that is a key to his research successes. "Because he integrates his medical knowledge into his research, his work is fascinating from both clinical and basic science viewpoints," says Duncan. Today, Kornfeld's career is a testament to one of his most strongly held convictions: that research on the most basic level ultimately will yield clinical rewards.

— Juli Leistner

Calendar

Nov. 19-Dec. 5

Lectures

Thursday, Nov. 19

Noon. Dept. of Molecular Biology and Pharmacology Seminar, "Role of Regulatory Subunits in Spatial and Functional Targeting of Protein Ser/Thr Phosphatases," Anna DePaoli-Roach, prof. of biochemistry and molecular biology, Indiana U. Room 3907 South Bldg.

1:10 p.m. George Warren Brown School of Social Work Lecture, "Children at Risk: Campaign Promises and a New Congress," moderated by Nancy Vosler, assoc. prof. of social work, George Warren Brown School of Social Work. Brown Hall Lounge.

2:30 p.m. Dept. of Mechanical Engineering Colloquium, "A CFD-based Approach for the Solution of Acoustics, Maxwell and Schroedinger Equations for Scattering Problems," Ramesh Agarwal, affiliate prof., WU Dept. of Mechanical Engineering; program director, McDonnell Douglas Research Laboratory. Room 100 Cupples II Hall.

3 p.m. Committee on Comparative Literature Lecture, "True and Fictional Detectives," Bill McClellan, St. Louis Post-Dispatch columnist. Hurst Lounge, Room 201 Duncker Hall.

4:30 p.m. Dept. of Mathematics Colloquium, "Homotopy Theory in the Service of Arithmetic and Algebra," Daniel Grayson, U. of Illinois-Urbana. Room 199 Cupples I Hall.

8 p.m. Dept. of English Colloquium with Lynn Weiss, visiting prof. Hurst Lounge, Room 201 Duncker Hall.

Friday, Nov. 20

9:15 a.m. Pediatric Grand Rounds, "The Discovery of the Cystic Fibrosis Gene: Ethical Implications," Norman Fost, prof., departments of pediatrics and history of medicine; vice chairman, Dept. of Pediatrics; director, Program in Medical Ethics, U. of Wisconsin. Clopton Aud., 4950 Children's Place.

Noon. Dept. of Cell Biology and Physiology Noon Seminar, "PCAM-1, Old Molecule, New Function," Clayton Buck, Wistar Institute, Philadelphia. Room 423 McDonnell Medical Sciences Bldg.

Noon. Human Studies Committee Educational Seminar Informal Discussion, "Rachel and Her Daddy," Julie Heide, research associate and gerontology specialist, Center on Aging Studies, U. of Missouri-Kansas City. Wohl Hospital Bldg. Aud.

1 p.m. School of Engineering and Applied Science Seminar, "Holography: A Major Factor in Photonics Development," Sastry Pappu, prof., WU Department of Mechanical Engineering. Room 305 Bryan Hall.

Monday, Nov. 23

Noon. Dept. of Cell Biology and Physiology Special Noon Seminar, "Cell Cycle Regulation and Development in *Drosophila*," Patrick O'Farrell, Dept. of Biochemistry and Biophysics, U. of California Medical Center, San Francisco. Room 423 McDonnell Bldg.

4 p.m. Dept. of Biology Seminar, "The Natural History of the Mitochondrial Small Ribosomal Subunit Gene and the Molecular Evolution of Periodical Cicadas," Chris Simon, Dept. of Ecology and Evolutionary Biology, U. of Connecticut. Room 322 Rebstock Hall.

4 p.m. Dept. of Psychology Colloquium, "Alcoholism, Past, Present and Future," David Pittman, prof., WU Dept. of Psychology. Room 102 Eads Hall.

4 p.m. Graduate Program in Immunology Seminar, "CTL Recognition of MHC Class T/Peptide Complexes," Ted Hansen, prof., WU Dept. of Genetics. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

8 p.m. Dept. of English presents a reading of poetry and prose with James Galvin, prof., Writer's Workshop, U. of Iowa. Hurst Lounge, Room 201 Duncker Hall.

Tuesday, Nov. 24

4 p.m. Molecular Microbiology Seminar Series, "Signalling Proteins and Complexes Involved in Bacterial Chemotaxis," Philip Matsumura, Dept. of Microbiology and Immunology, U. of Illinois College of Medicine. Cori Aud., 660 S. Euclid Ave.

5 p.m. Division of Cardiology Seminar, "The Rhythm of the Heart From the Cellular and Sub-cellular Perspective. Part 1: The Healthy Heart," Peter Corr, prof., WU departments of medicine and molecular biology and pharmacology, Division of Cardiology, and Jeffrey Saffitz, assoc. prof., WU departments of pathology and medicine, cardiovascular division. Room 601A Medical Center Library, 660 S. Euclid Ave.

Monday, Nov. 30

4 p.m. Dept. of Biology Seminar, "Retroviral Transduction of Hepatocytes *in vivo*: Implication for Hepatatic Gene Therapy," Katherine Ponder, WU Dept. of Internal Medicine. Room 322 Rebstock Hall.

4 p.m. Graduate Program in Immunology Seminar, "Models of MHC Deficiency," Laurie Glimcher, Irene Heinz Given Professor of Immunology, Harvard Medical School, Boston. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

Tuesday, Dec. 1

4 p.m. Physical Anthropology Group presents "The Lemurs of Wyoming: An Overview of Paleontological Fieldwork in the Rocky Mountain Eocene," Gary Schwartz, Sam Senturia and Myron Shekelle, graduate students, WU Dept. of Anthropology. Room149 McMillan Hall.

Wednesday, Dec. 2

4 p.m. Dept. of Biochemistry and Molecular Biophysics Seminar, "RNA Editing in Trypanosomes," Steve Hajduk, Dept. of Biochemistry, U. of Alabama, Birmingham. Cori Aud., 660 S. Euclid Ave.

Thursday, Dec. 3

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "The Nature of Fluid Flow and Moss Transport in Contact Aureoles: The Notch Peak Aureole as an Example," Peter Nabelek, assoc. prof., Dept. of Geology, U. of Missouri-Columbia. Room 102 Wilson Hall.

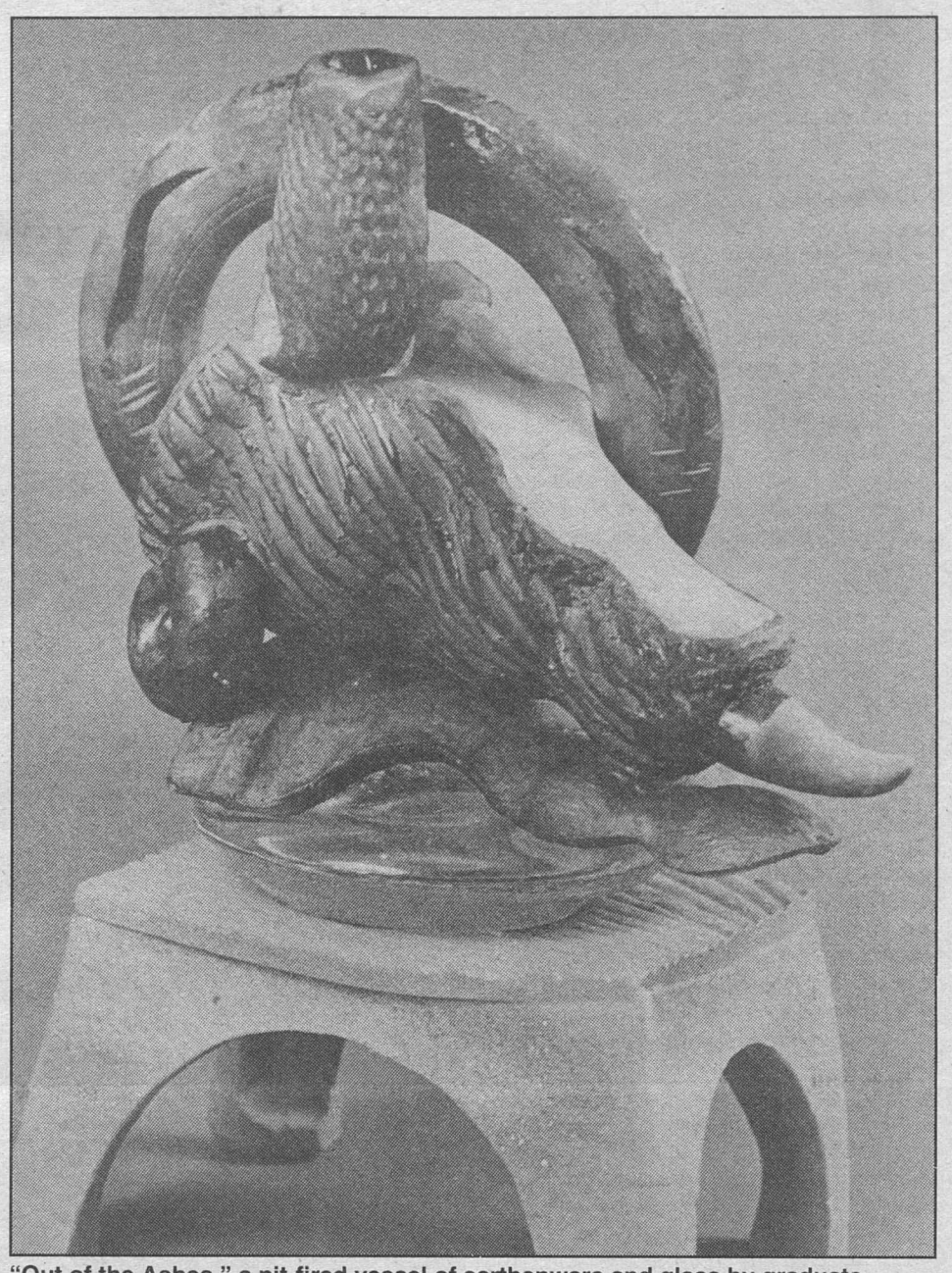
4:30 p.m. Dept. of Mathematics Colloquium, "Pluripotential Theory," Eugene Poletski, prof., Syracuse U. and U. of Michigan. Room 199 Cupples I Hall.

Friday, Dec. 4

9:15 a.m. Pediatric Grand Rounds, "The Energenetics of Breathing in Children With Respiratory Failure," J. Julio Pérez Fontán, assoc. prof., departments of pediatrics and anesthesiology, WU School of Medicine; director, Division of Critical Care; director, Pediatric Intensive Care Unit, St. Louis Children's Hospital. Clopton Aud., 4950 Children's Place.

Noon. Dept. of Cell Biology and Physiology Seminar, "Studies of Capping Protein in Skeletal Muscle and Epithelial Cells," Dorothy Schafer, WU Dept. of Cell Biology and Physiology. Room 423 McDonnell Bldg.

6 p.m. WU Association Travel Lecture Series, "East Indies — Gift of the Sea," by Grant Foster, who has won international acclaim and earned the title of New Zealand's film ambassador (also shown at 8:30 p.m.). Cost: $4.50 at the door. Graham Chapel.



"Out of the Ashes," a pit-fired vessel of earthenware and glass by graduate student Brian Christensen, is one of about 20 works featured in a student art exhibit at Bixby Gallery.

December School of Fine Arts graduates to exhibit works

Works by December School of Fine Arts graduates will be on exhibit from Dec. 4-18 in Bixby Gallery, Bixby Hall. An opening reception will be held from 5-7 p.m. Friday, Dec. 4, in the gallery.

The exhibit will feature works by undergraduates receiving bachelor's degrees, as well as art by graduate students. Bachelor's degree candidates featured in the exhibit are: Christopher Haney (painting), Benjamin Strickland (illustration), Chris Wallace (photography) and Llana Harris (photography). The master's degree candidates are Brian Christensen (ceramics) and Nancy Exarhu (printmaking).

Bixby Gallery is open from 10 a.m.-4 p.m. weekdays and 1-5 p.m. weekends. For more information about the exhibit, which is free and open to the public, call 935-4643.

Performances

Friday, Nov. 20

8 p.m. Edison Theatre "OVATIONS!" Series presents the Maria Benitez Spanish Dance Company (also Nov. 21, same time, and Nov. 22 at 2 p.m.). Edison Theatre. Cost: $20 for the general public; $15 for WU faculty, staff and senior adults; and $10 for students. For info. and reservations, call 935-6543.

Thursday, Dec. 3

8 p.m. Performing Arts Department presents "Intimidation: An Evening of One Acts" (also Dec. 4 and 5, same time, and Dec. 6 at 2 p.m. and 7 p.m.). Cost: $7 for the general public, $5 for faculty, staff, senior adults and students. Drama Studio, Room 208 Mallinckrodt Center. For more info., call 935-4795.

Music

Sunday, Nov. 22

3 p.m. Dept. of Music presents a WU Choir Concert under the direction of Robert Ray. Graham Chapel.

Thursday, Dec. 3

8 p.m. Dept. of Music Vocal Jazz Ensemble Concert directed by Fred Binkholder. Steinberg Hall Aud.

Saturday, Dec. 5

8 p.m. WU Chamber Choir concert directed by John Stewart. Graham Chapel.

Films

Thursday, Nov. 19

7 and 9 p.m. Filmboard Foreign Film Series presents "Ivan's Childhood." Room 100 Brown Hall. Cost: $3. **For 24-hour Filmboard hotline, call 935-5983.**

Friday, Nov. 20

7 and 9:30 p.m. Filmboard Feature Series presents "Grease" (also Nov. 21, same times). Room 100 Brown Hall. Cost: $3.

Midnight. Filmboard Midnight Series presents "The Fortune" (also Nov. 21, same time). Room 100 Brown Hall. Cost: $3.

Monday, Nov. 23

7 and 9 p.m. Filmboard Classic Series presents "Holiday" (also Nov. 24, same times). Room 100 Brown Hall. Cost: $3.

Tuesday, Nov. 24

7 p.m. Dept. of Asian and Near Eastern Languages and Literatures Chinese Film Series presents "Evening Bell," directed by Wu Ziniu. Room 219 South Ridgley Hall.

Monday, Nov. 30

7 p.m. Filmboard Classic Series presents "La Region Centrale" (also Dec. 1, same time). Room 100 Brown Hall. Cost: $3.

Tuesday, Dec. 1

7 p.m. Dept. of Asian and Near Eastern Languages and Literatures Japanese Film Series presents "Rikyu," directed by Hiroshi Teshigahara. Room 219 South Ridgley Hall.

Wednesday, Dec. 2

7 and 9 p.m. Filmboard Foreign Film Series presents "Such a Gorgeous Kid Like Me" (also Dec. 3, same times). Room 100 Brown Hall. Cost: $3.

Friday, Dec. 4

7 and 9:30 p.m. Filmboard Feature Series presents "Bugs Bunny Cartoon Festival" (also Dec. 5 and 6, same times). Room 100 Brown Hall. Cost: $3.

Midnight. Filmboard Midnight Series presents "Soylent Green" (also Dec. 5 and 6, same time). Room 100 Brown Hall. Cost: $3.

Exhibitions

"Midwest Modern: St. Louis Architecture by Harris Armstrong and Samuel A. Marx." Through Dec. 11. Givens Hall, first floor. Hours: 9 a.m.-5 p.m. weekdays. For more info., call 935-6200.

School of Fine Arts and Gallery of Art Faculty Show. Exhibition opening: 5 p.m. Nov. 20. Exhibit continues through Jan. 3. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.- 5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

"Selections From the Gift of Mr. and Mrs. Edwin Grossman." Through Jan. 29. Olin Library, Special Collections, Level 5. Hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5495.

"Unpathed Waters, Undreamed Shores: The World of Renaissance Medical Discovery." Through Jan. 2. Glaser Gallery, School of Medicine Library, seventh floor, 660 S. Euclid Ave. Hours: 8 a.m.-10 p.m. weekdays; 1-6 p.m. weekends. For more info., call 362-4239.

"Washington University Art Collections—19th- and 20th-century European and American Artists." Through May. Gallery of Art, lower gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

Calendar guidelines

Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published in the Calendar. All events are free and open to the public, unless otherwise noted.

Calendar submissions should state time, date, place, sponsor, title of event, name of speaker(s) and affiliation, and admission cost. Quality promotional photographs with descriptions are welcome. Send items to Melissa Kohne at Box 1070 (or via fax: 935-4259). Submission forms are available by calling 935-8533.

The deadline for all entries is noon Tuesday one week prior to publication. Late entries will not be printed. The Record is printed every Thursday during the school year, except holidays, and monthly during the summer. If you are uncertain about a deadline, holiday schedule, or any other information, please call 935-8533.

One-act plays focus on single theme

Two one-act plays will be performed by the Performing Arts Department at 8 p.m. Dec. 3, 4 and 5, and at 2 and 7 p.m. Dec. 6 in the Mallinckrodt Center Drama Studio, Room 208.

The Performing Arts Department presents an evening of one-act plays every year. The productions are acted in and directed by students. This year's production is titled "Intimidation: An Evening of One Acts."

The plays, "Gotcha" and "Hopscotch," are stories about attempts to communicate and the consequences of not being able to do so effectively.

"Gotcha," by Barrie Keefe, is a raw confrontation between a boy, two of his teachers and the school headmaster. The boy locks the three adults in a storage room to protest against the school system that has forgotten him, threatening to blow them up with a cigarette and an open gas tank. The play is an intense drama with an ending that leaves little room for hope.

Directed by junior Jonah Disend, the play has four characters: Kid, played by freshman Nicholas Tamarkin; Ton, played by graduate student Wilson Bell; Lynne, played by freshman Lisa Lewin; and the Headmaster, played by freshman Aaron Dickey.

"Hopscotch," by Israel Horovitz, is one of four plays from "The Quannapowitt Quartet." The play revolves around a playground conversation between a man and a woman, Will and Elisa. The audience thinks they don't know each other, but by the end of the play it becomes clear they do know each other. In fact, the two had a relationship in high school 14 years earlier. Elisa got pregnant and Will left her. The play is her attempt to communicate to him what a devastating impact he had on her life, says director Eric Nuetzel. In the end the man finally understands the woman's point, but then rejects it.

Nuetzel, a graduate student, says the play's title refers both to the game the woman plays during their conversation and to her feeling that he played hopscotch, leaped right over her and went on his way without her. The play also suggests how a situation can degenerate to violence when communication fails.

Elisa is played by senior Stacy Meyers and Will is played by junior Barry Levy.

Tickets to "Intimidation: An Evening of One Acts" are $7 for the general public and $5 for senior citizens, students and Washington University faculty and staff.

For more information, call 935-5858.

Sports

Volleyball

Last Week's Results: Washington 3 (15, 11, 15, 15), Wisconsin-LaCrosse 1 (6, 15, 2, 1); Washington 3 (15, 7, 15, 15), St. Thomas 1 (8, 15, 11, 8)
This Week: NCAA Division III Semifinals vs. University of Stony Brook, 8 p.m. Friday, Nov. 20, Washington University Field House; NCAA Division III Consolation/Final, 5 p.m./8 p.m. Saturday, Nov. 21, Washington University Field House
Current Record: 38-0

Men's Soccer

Last Week's Results: Colorado College 1, Washington University 0
Final Record: 14-4-3

Washington University's magic in the NCAA quarterfinal round came to an end as the Bears dropped a heart-breaking 1-0 decision to Colorado College on Sunday at Francis Field. The Bears had played in five previous quarterfinal matches, winning all five. The winning goal was scored with 8 minutes and 2 seconds remaining in regulation.

Earlier in the week, the University Athletic Association announced its all-association team. Earning first-team all-UAA honors were junior Kyle Draeger, Columbus, Ind., and senior Chris Wollmuth, Portland, Ore. Named to the second-team was junior Scott Jones, Cincinnati, Ohio.

Men's Basketball

This Week: Illinois Wesleyan Tipoff Tournament, Friday and Saturday, Nov. 20-21, Bloomington, Ill.; Millikin University, Tuesday, Nov. 24, Nashville, Ill.; Colorado College Tournament, Friday and Saturday, Nov. 27-28, Colorado Springs, Colo.
Current Record: 0-0

Washington University's men's basketball season gets under way at the Illinois Wesleyan Tipoff Tournament this weekend. This inaugural tournament is scheduled to become an annual event and the site will rotate between Midwest powers Illinois Wesleyan, DePauw and Washington University. The fourth team in this year's tourney is Nebraska Wesleyan University, an eight-time participant in the NCAA tournament.

The Bears are returning three starters from last year's squad, including all-UAA forward Charlie Borsheim, La Crosse, Wis. According to the UAA preseason coaches poll, the Bears are projected to finish second in the league behind Johns Hopkins University. The Bears, however, received five first-place votes to the Bluejays' four.

Women's Basketball

This Week: Tipoff Tournament, Friday and Saturday, Nov. 20-21, at Maryville University, St. Louis; Aurora University, 7:30 p.m. Tuesday, Nov. 24, Washington Field House; 4th Annual Washington University Tournament, Friday and Saturday, Nov. 27-28, Field House.
Current Record: 0-0

The Washington University women's basketball team takes an unexpected trip across town this weekend to open the 1992-93 season. The Bears were scheduled to host DePauw, Illinois Wesleyan, and Maryville in the inaugural Washington University Tipoff Tournament, but the volleyball final four has moved the hoop site to Maryville.

All three starting guards return for the Bears, who made their third consecutive trip to the NCAA tournament a year ago with a 22-5 mark. Back are graduate student Carolyn Royce, St. Louis, Mo., who earned second-team all-UAA honors, and juniors Sarah Goldman, Nashville, Tenn., and Stacy Leeds, Muskogee, Okla. In the annual UAA preseason poll, the Bears were picked to successfully defend last year's conference crown.

Task force to address key issues — *from page 1*

"Undergraduate education is central to the life of our University," Macias continued. "Washington University has justifiably earned a reputation for providing its students the opportunity to obtain a superior education. Admissions to graduate and professional schools and the employment of graduates in leading positions confirm our successes. We should be pleased but we cannot be content. Advancement in subject areas and development of new technologies appropriate to higher education are continuous."

Wheeler said the issues he would like the task force to address include student/faculty interaction, general education requirements of the undergraduate schools, devices for better student communication with teachers, class sizes, the use of computers as instructional aids, the role of student government, and minority and gender issues. He also would like the task force to examine how to improve students' communication skills, enhance the advising system, and help students become aware of other cultures while developing "a rich familiarity" with their own. The whole idea is "to suggest ways of making a good undergraduate program even better," he said.

In addition to Wheeler, the members of the task force are: Iver C. Bernstein, associate professor of history; Justin X. Carroll, acting dean of student affairs; junior Rosamond Macy Chadwick; junior Heather K. Christy; Rudolph Clay, librarian supervisor - reference, Olin Library; sophomore Danielle A. Dahlby; Lee J. Epstein, associate professor of political science; Steven M. Fazzari, associate professor of economics; Ronald C. Freiwald, associate professor of mathematics; sophomore Anthony V. Green; junior Marc E. Hartle; Sheldon S. Helfman, a professor in the architecture school; Gary M. Hochberg, associate dean for the undergraduate program, John M. Olin School of Business; sophomore Brian N. Katz; I. Norman Katz, professor and chair of systems science and mathematics; Allan Larson, associate professor of biology;

Chris Loving, associate director of residential life; Robert H. McDowell, professor of mathematics and director of the Teaching Center; James E. McLeod, dean of the College of Arts and Sciences; Gary A. Miller, associate professor of orthopedic surgery; Jeffrey C. Pike, associate professor of fine arts; Sarah N. Russell, assistant dean, Faculty of Arts and Sciences, and lecturer in the Department of English; Jane Schoenfeld, associate dean for undergraduate admission; Jeigh Singleton, associate professor of fine arts; Harriet A. Stone, associate professor of French; junior Andrea K. Stonecipher; junior Benjamin T. Tritle; and Kevin Z. Truman, associate professor of civil engineering.

Volleyball Bears face semifinalists again — *from page 1*

a two-year, 43-match winning streak. The Bears also have won 62 consecutive matches against Division III competition. Washington University already has faced each of the other three semifinalists this season, earning an aggregate match record of 4-0 and a game record of 12-0.

The University of California, San Diego, has won six of the 11 national championships contested, including four of the last six. The Tritons have met the Bears in the finals each of the past two years. Calvin is in the semifinals for the third time, while Stony Brook is making its first appearance.

Tickets are $5 for adults (single session) and $8 for an all-session pass; $3 for students with a valid ID; and $2 for children aged 12 and under. Washington students with ID will be admitted for $1.

Spann company replaces Clean-Tech as custodial contractor

Washington University has selected Spann Building Maintenance Co. to be its custodial contractor on the Hilltop Campus, effective Jan. 4, 1993. The firm will provide full campus janitorial services, which include management and execution of day-to-day cleaning of offices, classrooms, rest rooms and public areas as well as special project work, such as carpet and floor cleaning. The company also will handle the custodial needs for major events like Commencement.

The employees of the current contractor, Clean-Tech Co., who work at the University will have the opportunity to apply for openings at Spann if they wish to continue working on the campus. Those Clean-Tech employees who are interested in applying for a position with the new company should either inform their supervisor or contact Spann's personnel office at 241-1976 by Nov. 19. Interviews at Spann will begin soon after that date.

In its nearly 40 years in business, Spann has grown to be one of the largest contract cleaning firms in the Midwest. The St. Louis-based company also has offices in Indianapolis, Chicago, Louisville and Omaha. Spann services approximately 22 million square feet of corporate offices, and educational and public buildings. The company is a three-time recipient of the St. Louis Small Business Award.

"We are a family business with old-fashioned beliefs in good management and new ideas for better service," says Andrew R. Spann, executive vice president and son of the company's founder and president, Wayne Spann. "We pay close attention to detail and adhere to professional management and cleaning methods. Our service workers are highly respected and prized by the company. We put the personal well-being of every service worker on a level of great importance. This is not only a company philosophy, but it also is practiced on a daily basis in our methods and recognition programs. We pledge that the University will be pleased with our service."

Spann's service employees are members of the Service Employees International Union, AFL-CIO Local 50, the same union to which Clean-Tech employees belong.

The Shanley Building, designed in 1935 by St. Louis architect Harris Armstrong, was considered one of the most modern doctor's offices of its day. This photograph of the waiting room shows the thermal windows, stone fireplace and ceiling mural that Armstrong designed. Photographs and drawings of this building and others by Armstrong are featured in the architecture exhibit "Midwest Modern" at Givens Hall.

"Midwest Modern" spotlights St. Louis architect

"Midwest Modern," an exhibit of architectural drawings, photographs and other objects by the late St. Louis architect Harris Armstrong will be on display at the School of Architecture's Givens Hall through Dec. 11.

The exhibit, which was organized by Stephen Leet, affiliate assistant professor, and Andrew Ramist, lecturer, will focus on the 1935 Shanley Building at the corner of Maryland and Bemiston in downtown Clayton. The building was designed for Leo Shanley, an orthodontist who wanted the most modern doctor's office in St. Louis, in both technical and aesthetic terms. The building now houses a florist shop.

Armstrong's design features unique light fixtures, door hardware, furnishings and original artwork. The waiting room featured a dropped soffit, or horizontal surface, with a mural depicting the heavens; a stone fireplace; a cork floor; and a large glass wall facing onto a terrace.

For the Shanley building, Armstrong also developed an early example of double-glazed windows to promote energy efficiency prior to the development of thermal windows.

The exhibit features 45 photographs, 25 original drawings, the signboard from Armstrong's office and a 1937 silver medal from the Paris Exposition for the Shanley building.

The exhibit also includes drawings that Armstrong entered in a competition to design a memorial on the St. Louis waterfront. That competition — the Jefferson National Expansion Memorial and Historic Site Competition — was won by Eero Saarinen who submitted the design for the Arch. Armstrong's entry placed sixth in the competition, says Leet. Armstrong was the only St. Louis finalist.

A second part of the exhibit features work by Samuel Marx, a Chicago-based architect who designed a home for Morton May.

May, an executive with the May company, was Marx's nephew by marriage. The Morton May home features tubular steel columns, wide expanses of glass and a definite horizontal emphasis strengthened by projecting cantilevers and sun screens.

An elegant spiral staircase and stone chimneys provide strong contrasts to its austere lines. Marx designed furnishings and fixtures for May, who was a renowned art collector. Marx later designed the former Famous-Barr store in Clayton for the May Company.

The two buildings featured in the exhibit are both important examples of international-style architecture by prominent midwestern architects, says Leet. In addition, both buildings are endangered by developers.

The exhibit is free and open to the public. For more information, call the School of Architecture at 935-6200.

Clinical track rewards patient care — *from page 1*

a physician's time for clinical duties that can limit time spent on research.

"The existing system for appointments and promotion does not allow retention and appropriate recognition for physicians devoted primarily to patient care," Crane says. "The clinician track will provide these individuals with long-term security and recognize their vital role in fulfilling our academic missions."

The clinician track, Crane says, will reward physicians for excellence in patient care. It should also assure a stable patient load to provide adequate learning opportunities for medical students and house staff. In addition, increased clinician activity will benefit research by bringing in more patients to participate in studies, Crane points out, as well as generate more revenue for the institution.

"We're going to see health care reform in some manner and we need to be ready," says Crane. "Managed care plans know we provide outstanding care, but they don't necessarily think we're user friendly. If a patient has to wait two months to see one of our faculty when a community doctor can see them in a week, that's not good. Clinician track faculty can be of tremendous help in this area."

Professorial titles will be the same for faculty on either the investigator or clinician track. Appointment to the investigator track is based primarily on contributions in basic biomedical or clinical research. Appointment to the clinician track will be based mostly on clinical contributions. Excellence in teaching is critical in both tracks.

In the investigator track, tenure is normally granted at the time of promotion to associate professor, usually after four to eight years as an assistant professor. In the clinician track, faculty will not be expected to conduct research, but will be evaluated mostly on clinical competence. Those promoted to associate professor will receive four-year appointments to be renewed each year. Appointments will be extended five years for full professors and six years after a decade at the professor level.

If an appointment is not to be renewed, associate professors will be given notice at least three years in advance of the appointments and six years in advance for those holding six-year appointments.

"With the tenure system only, we have lost some excellent clinicians and teachers because we could not promote them," Crane says. "I believe the complementary nature of the clinician and investigator pathways should enhance the ability of our faculty to excel in all aspects of our academic mission."

In 1989, a similar proposal was turned down by the faculty. The plan offered a distinction in academic titles, which raised concern among the faculty that clinicians may be seen as less important, Crane says.

The School of Medicine will be in good company when it begins offering the clinician track. Of the nation's 126 medical schools, 112 offer tenure, and of those, 80 also have a clinician track.

Crane and Drobak both applaud Samuel A. Wells, M.D., professor and head of the Division of General Surgery, who headed the clinical pathway steering committee, and William A. Peck, M.D., vice chancellor for medical affairs and dean of the School of Medicine, for their initiative to secure the future for clinical faculty.

Tuberculosis test results announced

Two employees and nine students tested positive for the tuberculosis (TB) bacteria according to Laurie Reitman, M.D., director of University Health Services. While it is unlikely that any of those who tested positive has an active case of TB, all will have an x-ray and a physical examination. People who test positive but who do not have an active case of TB are not contagious and do not represent a threat to anyone.

A total of 65 employees and 245 students completed the voluntary skin testing procedure offered to the University community by Health Services between Oct. 30 and Nov. 5. The skin testing was provided in response to concern about possible infection by an employee of the linen room who was diagnosed in late August with possible tuberculosis.

"I think it was very appropriate to do TB skin testing of faculty, students and staff. There was no link found between the infected people and the index case that prompted the investigation," said Linda Fisher, M.D., chief medical officer of St. Louis County.

Of the students who tested positive, four had used the linen service and five had not. The positive employees had no direct contact with the linen service.

"These numbers show no higher incidence of positive test results among students, faculty and staff who had contact with the linen service, rather they reflect what is found in the general population," said Reitman.

The employees who tested positive have been referred to private physicians and the students who tested positive are being advised and treated by University Health Services. The University continues to screen all new, transfer and graduate students as they come to campus and to counsel anyone who tests positive for the TB bacteria.

News Analysis

News analysis contains excerpts from the For Expert Comment service. The service, which provides timely faculty comments to the media, is distributed by the Office of University Communications.

Investment in children imperative to support elderly population

Martha N. Ozawa, Ph.D., an expert in social policy and the Bettie Bofinger Brown Professor of Social Policy at the George Warren Brown School of Social Work, has written more than 100 papers on such topics as the social implications of an aging society and the poverty of women and children. She comments here on the recent Census Bureau report "Sixty-Five Plus in America," which shows the ranks of America's elderly are swelling.

Martha N. Ozawa

In order for America to support its growing elderly population, society must invest more in children, says Martha N. Ozawa, Ph.D., Bettie Bofinger Brown Professor of Social Policy at the George Warren Brown School of Social Work. "The problem of an aging population cannot be dealt with in isolation. It is an intergenerational phenomenon," she says.

Ozawa points out that as the population of the elderly is growing, the population of children is shrinking.

Because of that, Ozawa says society must increase public expenditures for education and related items. "We must nurture each child to be an ever more productive worker," she says. "The need to invest in America's children is crucial if the United States is to support the elderly — with its burgeoning Social Security payroll — as well as to compete in the global marketplace."

Ozawa's research shows that among the shrinking child population, non-white children make up the fastest growing segment. Her research also shows that non-white children are overrepresented in the pool of undereducated, underprivileged children. "Unless we do a good job in bringing those underprivileged children closer to the lifestyle of the average American child, we may face a battle when they become adults. Instead of becoming productive workers, they may demand public expenditures as unemployed or underemployed Americans. Ironically, there could be a battle in the allocation of public expenditures — Social Security vs. other welfare programs for the non-elderly. We have to start right now investing in our children. Policymakers must begin to see the connection between supporting education for the young and supporting the elderly," she says.

In addition, Ozawa says that supporting the greater participation of women in the labor force will help the country meet its challenge of supporting the elderly. "On the Social Security front, more women will contribute to the system," says Ozawa. This will slow the downward movement in the worker-beneficiary ratio, which in recent years has shrunk from 3:1 to 2:1, and thus help maintain Social Security's financial viability, she says.

For The Record

For The Record contains news about a wide variety of faculty and staff scholarly and professional activities.

Of Note

The National Aeronautics and Space Administration (NASA) has presented **Raymond E. Arvidson**, Ph.D., professor and chair of earth and planetary sciences, with the Group Achievement Award in recognition of his "outstanding dedication and motivation in developing information systems that are revolutionizing how scientists obtain data." Arvidson was specifically honored for his work in organizing and implementing NASA's Climate and Land Data System Operations and Development Team. …

David L. Cronin, Ph.D., assistant dean for administration at the George Warren Brown School of Social Work, received a $77,000 grant from the Department of Health and Human Services, titled "Professional Education for Missouri Division of Family Service Workers." The project will provide a graduate studies program for students interested in pursuing a career in public child welfare services. The program is aimed at people employed with the Missouri Division of Family Services. …

The Courtauld Institute in London invited **Henry I. Schvey**, Ph.D., professor of drama and chair of the Performing Arts Department, to contribute his translation of Oskar Kokoschka's 1908 poem, "Die Traumenden Knabe (The Dreaming Youths)," to an exhibition on the Austrian painter-playwright. Schvey also offered a lecture on this illustrated poem, considered the first example of the stream-of-consciousness technique in German. The lecture was titled "Oskar Kokoschka: Painter, Playwright, Revolutionary."

Introducing new faculty members

The Record is running a series profiling new faculty on the Hilltop and Medical campuses.

Mark P. Callery, M.D., assistant professor of surgery, served as chief resident in the Washington University Department of Surgery before joining the full-time faculty. He also is a staff surgeon at Barnes, St. Louis Children's and Jewish hospitals, as well as St. Louis Regional Medical Center and JC-Veterans Administration Medical Center. His research interests include the role of the liver in systemic immunity. Among his awards are a 1988-89 American Liver Foundation Postdoctoral Research Fellowship and a 1987-1990 National Heart, Lung and Blood Institute Award. He also is a member of the national medical honor society Alpha Omega Alpha. He has published many articles in magazines and journals and has delivered numerous abstracts and presentations at conferences held worldwide. Callery received a bachelor's degree in chemistry with honors from Tufts University and a medical degree from The Albany Medical College in 1980 and 1985, respectively.

Leila Sadat Wexler, J.D., associate professor of law, comes to Washington University from Paris, France, where she worked on international arbitration cases for the S. G. Archibald law offices. In Paris she worked on financial and international commercial practice cases with the Slaughter and May law firm. She also has served as a judicial clerk for the French Supreme Court and the French Council of State. Her research interests include European economic community law, corporations and modern Islamic law. She has published several articles on such topics as securities and constitutional law. Wexler received a bachelor's degree in biology from Rutgers University and a law degree, summa cum laude, from Tulane University in 1980 and 1985, respectively. She also received a master's degree in law from Columbia University in 1987 and a doctoral diploma in 1988 from the University of Paris I-Sorbonne.

Speaking of

As part of a series sponsored by Lehman College of the City University of New York, **Garland E. Allen,** Ph.D., professor of biology, gave a lecture titled "Why Columbus Did Not Need Copernicus But Copernicus Did Need Columbus." The lecture described the effects of Columbus' voyage and the rise of navigation in the 15th and early 16th centuries on the development of Copernican astronomy in the mid-16th century. The lecture opened an afternoon session on Science and Culture in the Age of Columbus. …

"Managing Solid Waste as if Economics Matters" was the title of a presentation given by **Kenneth Chilton**, deputy director of the Center for the Study of American Business, during the 15th annual Madison Waste Conference at the University of Wisconsin. He also gave a talk on "Clean Water's Muddied Future" at the Clean Water and American Economy Conference in Arlington, Va., which was sponsored by the Environmental Protection Agency and Resources for the Future. …

Ira J. Hirsh, Ph.D., chair of the Department of Speech and Hearing, director of the Central Institute for the Deaf and Mallinckrodt Distinguished University Professor Emeritus, delivered a lecture at the International Colloquium on Audiophonology at Besancon, France. The lecture was titled "The Relation Between Laboratory and Clinic." Hirsh also attended a meeting in Lyons on the handicapped person in the workforce. …

During the 26th Annual Meeting of the Middle East Studies Association in Portland, Ore., **Mohamed-Salah Omri**, lecturer in Asian and Near Eastern languages and literatures and graduate student in comparative literature, presented a paper on "Identity in (of) Maghrebian Literature Written in French."

Guidelines for submitting copy:

Send your full name, complete title, department, phone number, and highest-earned degree, along with a typed description of your noteworthy activity to For The Record, Campus Box 1070. Items must not exceed 75 words. For more information, call 935-5293.

Brandt appointed research office associate

E. J. Brandt, Ph.D., has been appointed associate for industrial contracts and licensing in the University's Research Office. Brandt will specialize in facilitating industrial relationships for the School of Medicine faculty, including acquisition of research support and licensing of technology developed at the University.

The appointment was announced by Provost Edward S. Macias, Ph.D.

"We are very happy to have Dr. Brandt join our Research Office," Macias said. "Her experience in industry and academia gives her special insights into company objectives in supporting academic research, and in negotiating a compatible 'fit' between academic goals and company needs. Her breadth of experience — with both large and small companies — will be useful because both kinds of companies have active roles in supporting biomedical and biological research, and in developing academic technology for public use and benefit."

Brandt will work with Washington University faculty to facilitate mutually beneficial interactions with companies. She will report to H.S. (Duke) Leahey, the director of industrial contracts and licensing for the Hilltop and Medical campuses. Leahey is developing a focused industrial relationships program within the Research Office under a planning effort initiated by Susan E. Cullen, Ph.D., associate vice chancellor for research.

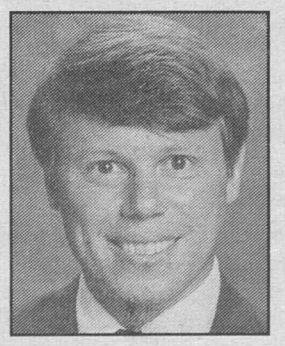
"Dr. Brandt is a motivated and effective person with a unique blend of scientific training and business experience that will be extremely important in this position," said Cullen. "We are very pleased to have found a professional who will be at ease working with our faculty in the biological and biomedical sciences, and one who can help them get optimal benefit from their industrial relationships."

Brandt comes to Washington University from Molecular Rx Inc. of Nashville, Tenn., where she was executive vice president of general management and regulatory affairs since 1989. Before that, she was at Monsanto Co., St. Louis, serving in a variety of roles from 1976 to 1990. Among her positions at Monsanto were senior research biochemist from 1976 to 1978; group leader of Monsanto Biomedical Research from 1979 to 1981; environmental practices specialist from 1981 to 1986; and regulatory compliance manager from 1986 to 1989. Since 1987, she has been adjunct professor of microbiology at Clemson University and an invited guest lecturer at Washington University and the University of Quebec.

Brandt received a bachelor's degree in biology from Rosary Hill College, Buffalo, N.Y. In 1970 she received a master's degree in natural science and a doctorate in molecular biology and genetics from the State University of New York, Buffalo, in 1975.

Campus Authors

The following is a recent release available at the Campus Bookstore in Mallinckrodt Center. For more information, call 935-5500.



Allegory and Philosophy in Avicenna (Ibn Sînâ) is a new book by **Peter Heath**, Ph.D., associate professor of Arabic language and literature in the Department of Asian and Near Eastern languages and literatures. In the book, Heath offers a detailed examination of the contributions of Avicenna, an 11th-century Muslim philosopher, to Islamic allegory. He pays special attention to Avicenna's psychology and poetics and to the ways in which they influenced strains of theological, mystical and literary thought in subsequent Islamic — and Western — intellectual and religious history. Heath begins by showing how Avicenna's writings fit into the context and general history of Islamic allegory and explores the interaction among allegory, allegoresis and philosophy in Avicenna's thought. The book includes an illustration of Avicenna's allegorical practice in the form of a translation of the Mi'râj *Nâma* (The Book of the Prophet Muhammad's Ascent to Heaven), a short treatise in Persian generally attributed to Avicenna. Heath's book is an original and important work that breaks new ground by applying the techniques of modern literary criticism to the study of medieval Islamic philosophy. It will be of interest to scholars and students of medieval Islamic and Western literature and philosophy. (University of Pennsylvania Press)

Opportunities & personnel news

Hilltop Campus

The following is a list of positions available on the Hilltop Campus. Information regarding these and other positions may be obtained in the Office of Human Resources, Room 126 North Brookings Hall, or by calling 935-5990.

Rare Books Catalog Librarian
930056. *Olin Library.* Requirements: MLS degree from ALA- accredited library school; master's degree in the humanities desirable; academic library or equivalent cataloging training or experience with AACR2 and LC classification; rare books cataloging training or experience; archival and manuscript cataloging experience using AMC format; ability to work with non-English languages and non-Roman alphabets; working knowledge of OCLC and NOTIS or other automated systems; reference training or user service experience; supervisory experience; knowledge of preservation procedures; and knowledge of national and international trends in bibliographic description desirable. Resume and three letters of recommendation required.

Department Secretary, Part-time
930073. *Center for Computer Systems Design.* Requirements: Four years of college; typing 50 wpm with accuracy. Duties: answer telephone, greet callers, maintain calendars and schedules, file maintenance, make travel arrangements, type routine correspondence, classwork; assist in fiscal activities of center - coordinate journal search via Washington University Medical School Library, assist in annual report preparation, assist in coordination of research progress reviews, coordinate center technical report distribution; assist in departmental accounting procedures; maintain office supplies. Clerical testing and three letters of recommendation required.

Library Assistant, Part-time
930081. *Olin Library.* Requirements: Two years of college or equivalent experience; library or audiovisual experience desirable; typing 35 wpm with accuracy; ability to work well with others and to respond to the public in a helpful and courteous manner; some mechanical aptitude; a willingness to learn library automation, microcomputers and audiovisual equipment is a necessity; a flexible attitude and ability to work under some pressure; willingness to work occasional weekends if necessary; ability to use an IBM PC; experience with WordPerfect and Lotus desirable. Clerical testing and three letters of recommendation required.

Department Secretary
930083. *Alumni & Development Programs.* Requirements: Associate's degree or equivalent; specialized secretarial or business training; three years general office experience; typing 50 wpm with accuracy; word processing experience or willing to learn; good command of English; alert and well spoken; can deal with multiple priorities with minimum supervision; must be able to work and relate well with people. Clerical testing and three letters of recommendation required.

Programmer
930091. *Olin Library.* Requirements: Bachelor's degree in computer science; demonstrated experience in coding and debugging C programs; working knowledge of the UNIX environment including TCP/IP networking; knowledge of object-oriented programming technologies such as C++; knowledge of PC programming environments (DOS and WINDOWS); experience implementing client-server applications. Resume and three letters of recommendation required.

Department Secretary
930099. *Alumni & Development Programs.* Requirements: Specialized secretarial and business training; two years office experience; typing 40 wpm with accuracy; must have a strong command of the English language and must be able to deal with multiple priorities with minimal supervision; overtime, including nights, weekends, etc. is essential, as is a good personality, and good grooming. Clerical testing and three letters of recommendation required.

Academic Secretary
930100. *Political Science.* Requirements: High school graduate with a minimum of two years of college, bachelor's degree preferred; excellent interpersonal skills and grammar; ability to work on many projects simultaneously; must be able to organize, set priorities, and follow up on details; typing 40 wpm with accuracy. Clerical testing and three letters of recommendation required.

Medical Campus

The following is a partial list of positions available at the School of Medicine. Employees who are interested in submitting a transfer request may contact the Human Resources Department of the Medical School at 362-4920. External candidates may call 362-7195 for information regarding application procedures or submit a resume to the Human Resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, Mo., 63110.

Coding Specialist
930219. Requirements: One year of college; associate's degree preferred; experience in medical research, medical insurance and knowledge of medical terminology; knowledge of CPT-4 and ICD-9 manuals helpful.

Medical Research Technician
930227. Requirements: Two years of college, bachelor's degree preferred; previous experience in animal surgery and tissue culture preferred.

Clerk Typist II
930256. Requirements: High school graduate/equivalent; typing 50 wpm; good communication and interpersonal skills needed to deal tactfully with medical staff; prefer individual who is familiar with medical and scientific terminology.

Medical Transcriptionist
930257. Requirements: High school graduate/equivalent; excellent communication skills. Must have word processing experience and be familiar with medical terminology; must be able to transcribe from cassettes and written notes; may serve as backup for various clerical positions; typing 70 wpm desirable.

Medical Research Technician
930279. Requirements: Bachelor's degree in scientific field, preferably biology or chemistry; one or two years experience in a research environment preferred, but will consider a good applicant with experience limited to coursework.

Secretary II
930290. Requirements: High school graduate/equivalent, some college preferred; typing 60 wpm; prefer individual with knowledge of medical terminology and medical insurance claims.

Clerk I
930300. Requirements: High school graduate/equivalent; must have some knowledge of office systems and procedures; CRT experience; typing 40 wpm desirable

Special Project Assistant
930310. Requirements: High school graduate/equivalent, some college-level business courses preferred; experience in grant administration; prefer experience with Vax computer systems.

Clinical Therapy Technician II, Part-time
930326. Hours: 8 a.m.-5 p.m., 20 hours a week. Requirements: High school graduate/equivalent, certificate or associate's degree preferred; experience in an ophthalmic setting (visual field testing, Humphries, etc.). Prefer certified ophthalmic technician with excellent refraction skills.

Data Assistant
930331. Requirements: High school graduate/equivalent, bachelor's degree preferred; must have good interpersonal and communication skills; ability to work independently; typing 40 wpm with accuracy. Knowledge of PC and DBASE desirable.

Accounting Payroll or Purchasing Assistant I
930334. Requirements: High school graduate/equivalent with good communication skills; should have knowledge of various office machines; experience on CRT. Prefer individual with experience in purchasing, bookkeeping and accounting.

Medical Research Technician
930337. Requirements: Bachelor's degree, master's degree with background in either biology or chemistry preferred. Should have the ability to learn molecular biological techniques including PCR. Must be willing to perform much work with state-of-the-art computer-linked microscopes.

Clerk I
930345. Requirements: High school graduate or equivalent; must have a basic understanding of office procedures; prefer individual capable of typing 40 wpm accurately using a CRT. Will be performing various routine office duties.

Inventory Delivery or Maintenance Attendant
930356. Requirements: High school graduate/equivalent preferred; must be available to work flexible hours in various support service duties. Prefer experience in housekeeping and the craft industry.

Identifying food sharing key to theory — *from page 1*

presence of larger and more meat-bearing bones in greater quantity suggested a living site, and the presence of smaller and less meat-bearing bones in fewer number suggested a kill site. This model has been used to differentiate between kill sites and base camps at early hominid sites, such as Olduvai Gorge, and to make the argument that early hominids used home bases.

A research team from the University of Utah recently studied hunting and bone transport by contemporary Hadza hunter-gatherers of northern Tanzania. The Utah researchers have refined the prediction of what body parts would be transported and what would not, depending on the kind of animal and the circumstances of its butchery.

Field study among Okiek

For one year Marshall and her husband, Tom K. Pilgram, Ph.D., instructor at the Mallinckrodt Institute of Radiology, lived among the Okiek to test the transport hypothesis. Marshall picked Kenya's Okiek because they live in an environment very different than that of the Hadza of Tanzania or the !Kung of southern Africa, both hunter-gatherer tribes that have been heavily studied. Unlike those two groups of grassland dwellers, the Okiek live in a high-altitude rain forest environment.

Marshall emphasizes that hunter-gatherer groups are not all the same. Even today, with very few remaining, there is variety between hunter-gatherer cultures. And, she adds, in the remote past, when there were far more hunter-gatherers on Earth, the variety was probably even greater.

Like most archaeologists, Marshall assumed as she began her study that the pattern of bone remains would be determined by what parts of a killed animal were carried back to the living site. But her data pointed her in another direction.

As Marshall observed, the Okiek usually bring an entire animal home from a kill site, leaving nothing behind. All the meat and associated bones are shared extensively — not just within a given settlement, as was previously assumed, but also between settlements. These settlements can be several kilometers apart.

Some hunters are more successful than others and they tend to get more meat and more desirable body parts as a result. Thus, a site at the home of a successful hunter, logically, would contain larger and more animal bones and, to an archaeologist, would look the same as a site previously identified as a settlement site. And, again based on Marshall's observations, a site that previously would have been interpreted as a kill site — smaller bones, less favored animal parts — could instead be the home base of a less successful hunter who would have received some food from more successful hunters through sharing.

Marshall's new model is not a replacement for the transport model, she cautions. Food sharing is, however, another behavior archaeologists should consider when excavating a site. Many other factors affect where and how bones are discarded: animals forage among discarded bones, taking some away from the site; humans compact bones by stepping on them after they are discarded; and different bones survive at different rates, with the more dense and stronger bones surviving longer than the fragile, smaller bones.

Nevertheless, being able to identify food sharing in archaeological sites will be extremely useful to the field of archaeology and anthropology, says Marshall. Sharing is considered an important evolutionary step that indicates more advanced social organization. In 1977, Isaac suggested that sharing food may have encouraged early human brain development. Those humans smart enough to share, he hypothesized, would have reduced the risk of starvation, lived longer and produced more offspring. This created a selective pressure in favor of more intellectually developed humans.

The key to testing this theory, says Marshall, is to identify food sharing in archaeological sites. This is a very exciting research area among archaeologists, she adds.

Recently archaeologists are beginning to identify animal parts shared between hearths within a single settlement by looking at spatial patterns of bones of different species and by matching broken bones much as archaeologists match broken pot sherds. Jean Hudson, Ph.D., assistant professor of anthropology at UCLA who researched the Aka pygmies of Zaire, pioneered this work. Jim Enloe, Ph.D., assistant professor of anthropology at the University of Iowa, not only matches broken bones, but also uses extremely precise bone measurements to identify meat sharing 12,000 years ago in the French site of Pincevent.

In addition, says Marshall, several research teams are planning a new round of field research on food sharing among contemporary hunter-gatherers. As a result of this new research impetus, Marshall says, we soon will know much more about the antiquity of food sharing among humans and the significance of food sharing in the development of human culture and social organization. — *Debby Aronson*